

COLLAPSIBLE REFORMER EXERCISE APPARATUS

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation in part of United States Patent Application Serial No. 09/835,204, filed on April 12, 2001, which is a
5 continuation-in-part of United States Patent Application Serial No. 09/521,555, filed on March 9, 2000, which is a continuation-in-part of United States Patent Application Serial No. 09/275,755, filed March 25, 1999, now U.S. Patent No. 6,186,929 which is also a continuation-in-part of United States Patent Application Serial No. 09/266,286, filed March 11, 1999, now
10 abandoned, all four of which are hereby incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION

Field of the Invention:

This invention relates generally to the field of exercise equipment in
15 which a movable carriage is utilized to at least partially support a user's body, commonly referred to as a "reformer", and more particularly to a telescopically collapsible reformer with a rigid frame carriage.

Description of the Related Art:

Joseph H. Pilates, in U.S. Pat. No. 1,621,477, originally developed the
20 concept of using a wheeled platform carriage connected to a resistance device such as a set of weights in conjunction with a stationary frame to provide a variable resistance against which a user could push with his/her feet or pull with the arms while in a sitting or recumbent position in order to exercise the major muscle groups of the user's trunk, legs and/or arms. Since that time
25 Joseph Pilates developed many changes and improvements in the design of such an apparatus, and more recently, have been evolved by his students and others. U. S. Pat. No. 5,066,005 and my patents referred to above are

representative of the current state of evolutionary development of these changes that have taken place since 1927.

The current conventional "reformer" type apparatus includes a wheeled platform carriage, which rides on a rectangular wooden or metal frame. The above referenced patent discloses examples of wood framed reformers. An example of a metal frame reformer is disclosed in U.S. Patent No. 5,792,033 to Merrithew. The carriage, which rides on the frame, is connected to a series of parallel springs or elastic members, which are in turn connected to a foot end of the rectangular frame. The carriage typically rides on parallel rails or tracks typically mounted to the inside of the longer sides of the rectangular frame. This carriage has a flat, padded upper surface and typically includes a pair of spaced, padded, upright shoulder stops and a headrest at one end to support the shoulders and head of the user when he/she is reclined on the carriage. An adjustable foot bar, foot support, or footrest against which the user places his/her feet is mounted to the foot end of the rectangular frame. The user can then push against the footrest to move the carriage along the track away from the footrest against spring tension to exercise the leg and foot muscle groups in accordance with prescribed movement routines. A carriage stop pin is typically mounted on the track near the foot end to prevent the carriage from moving too close to the footrest. These pins are typically metal pins with a sleeve made of a material, such as rubber to lessen the amount of noise made when the carriage is retracted against the stop pins.

U. S. Patent Nos. 5,338,276, 5,607,381 and 5,681,249 disclose reformers and several footrest arrangements and adjustable headrest assemblies for this type of exercise apparatus. One of the difficulties, which the currently available reformers do not optimally address, is the portability and storability of the apparatus. Accordingly, there is a need for a reformer type of exercise apparatus that can be efficiently stored and transported without sacrificing quiet operation and full reformer capabilities.

SUMMARY OF THE INVENTION

The reformer exercise apparatus in accordance with embodiments of the present invention addresses the above-identified limitations in conventional reformer designs. The present invention is an exercise apparatus which includes a wheeled carriage having a rigid platform and a generally flat top surface. The carriage is movably mounted on parallel track members of a generally rectangular telescopically collapsible frame, which has a head end and a foot end. The carriage has a pair of upwardly extending shoulder stops mounted thereto at one end and a headrest between the shoulder stops that extends outward from the carriage toward the head end of the frame. A plurality of elastic members may be selectively connected between the foot end and the carriage to elastically bias the carriage toward the foot end of the frame.

The frame primarily comprises a pair of telescoping rail member assemblies spaced in parallel relation by a foot end support member and a head end support member. Each of the rails includes a tubular female section and a male section that fits into the female section. A spring support bracket fastened at the foot end of the frame is used to selectively receive one end of each of a plurality of springs. The other end of each of the springs is fastened to the carriage to elastically bias the carriage toward the foot end of the frame.

The head end of the frame supports a pair of rope or cord pulleys to permit the carriage to travel against spring tension the full length of the extended parallel rails or tracks by the user pulling ropes each having one end fastened to the head end of the carriage and running through one of the pulleys. In addition, the head end has a central bridge member which holds the head ends of the tracks apart, supports the pulleys, and incorporates a hand grip for pulling the collapsed reformer along a travel surface.

The carriage assembly is captured between the rail members by roller wheel and guide roller assemblies in which four roller wheels ride on top of the rails. The guide rollers ride along the inside vertical walls of the rails to center the carriage between the rails, prevent binding of the carriage on the
5 rail members and minimize friction between the carriage and the rails.

For storage, the rail assemblies may be telescopically collapsed, capturing the carriage between the head and foot ends, and the shoulder stops can be unlatched and folded down to make a compact package that may be rolled under a bed, stored in a closet, or easily transported in a vehicle.

10 Other objects, features and advantages of the present invention will become apparent from a reading of the following detailed description when taken in conjunction with the accompanying drawing wherein a particular embodiment of the invention is disclosed as an illustrative example.

BRIEF DESCRIPTION OF THE DRAWING

15 Fig. 1 is an upper perspective view of one embodiment of the reformer exercise apparatus in accordance with the present invention with the head end telescopically retracted toward the foot end of the frame.

Fig. 2 is a bottom perspective view of the reformer exercise apparatus shown in Fig. 1.

20 Fig. 3 is a separate bottom perspective view of the carriage assembly.

Fig. 4 is an enlarged partial side view of the head end of the reformer exercise apparatus shown in Fig. 1.

Fig. 5 is a separate bottom perspective view of the carriage frame.

Fig. 6 is an open end view of the carriage frame shown in Fig. 5.

25 Fig. 7 is a foot end perspective view of the apparatus shown in Fig. 1 with the frame fully expanded.

Fig. 8 is a separate exploded view of a pair of telescopic rail assemblies in accordance with the invention.

Fig. 9 is foot end perspective view of another embodiment of the reformer exercise apparatus in accordance with the present invention with
5 frame fully expanded.

DETAILED DESCRIPTION OF THE INVENTION

A reformer exercise apparatus 10 in accordance with a preferred embodiment of the present invention is shown in upper and lower perspective views in Figures 1 and 2 respectively. In these views, the reformer 10 is
10 shown fully collapsed. The exercise apparatus 10 comprises a generally rectangular frame 12 having a head end 14 and a foot end 16 and a pair of parallel track or rail member assemblies 18 separating the head end 14 from the foot end 16.

A movable carriage 20 rides on four roller wheels 22 fastened to the underside of the carriage 20 also shown in Fig. 3. The roller wheels 22 roll
15 on the track member assemblies 18 to support and guide movement of the carriage 20 back and forth along the track member assemblies 18 of the frame 12. Up to seven elastic members, e.g., springs 24, may be selectively connected between the carriage 20 and the foot end 16 to bias the carriage 20
20 toward the foot end 16 with varying amounts of spring force.

A foot bar 26 is removably fastened to the frame 12 at the foot end 16 so as to provide a stationary support for a user to push against in order to move the carriage 20 back and forth along the track member assemblies 18. The foot bar 26 may be reversed and turned around and reinserted into one of
25 two sets of apertures 80 in the foot end 16 to provide a different horizontal foot position. This moves the foot bar 26 closer to the carriage 20. Thus, there are four positions in which the user can place the foot bar 26 accommodating those users that may have shorter legs. The foot end 16 also includes a foot platform 28 for a standing user to place one foot on while the

other foot is placed on the carriage **20** for standing exercises on the apparatus **10**. This platform **28** is preferably made of two pieces of folded sheet material such as aluminum, aluminum alloy or rigid plastic, and more preferably of steel sheet metal, and also serves as a cross member to support and space the rail member assemblies **18** apart. The second piece of sheet metal, the jump board support **29**, and foot bar **26** together provide a support for a jump board **78**, the bottom of which can be placed in a channel formed by the jump board support **29**. The back of the jump board rests against the foot bar **26** as shown in Fig. 7.

The head end **14** is designed to space the rail member assemblies **18** rigidly apart, act as a handle and support a pair of pulley assemblies **30**, also shown in Fig. 4. The head end **14** has a folded sheet metal cross member **32**, preferably made of steel, aluminum or an aluminum alloy, and is fastened to the head ends of the rail member assemblies **18** by a spud that receives screws securing the cross member **32** to the rails **18**. The cross member **32** is preferably comprised of a vertical wall and a top wall. The ends of the rail member assemblies **18** are fastened to the vertical wall of the cross member **32**, as shown in Fig. 1. The top side **34** of the cross member **32** is sloped downward and extends to the top of the rail member assemblies **18**. The top side **34** of the cross member **32** is screwed or otherwise fastened to the top of the rail member assemblies **18** through the spud (not shown) located inside the head ends of the rail member assemblies **18**.

The top side **34** of the tubular box cross member **32** supports a pair of pulley assemblies **30** each of which has a hand cord (not shown) threaded through the pulley **30**. One end of the hand cord is adjustably fastened to the carriage **20** (not shown). The other end is typically gripped by a user during arm or leg exercises (not shown).

Referring back to Figs. 1 and 2, the carriage **20** comprises a rigid frame **38** which has a generally rectangular shape. A flat rectangular cushion pad **40** is secured to the upper surface of the frame **38**. A pair of shoulder stops **42**

are spaced apart near one end of and fastened to the frame 38. These shoulder stops 42 engage a user's shoulders when the user lies on his or her back on the carriage 20 while exercising on the apparatus 10 and prevent the user from sliding toward the head end 14. A padded headrest 44 is fastened by a hinge (not shown) at a base end of the headrest 44 to the frame 38 between the shoulder stops 42. A trapezoidal shaped hinged block 46 is fastened to the underside of the headrest. This block can be moved permitting a user to adjust the incline of the headrest 44 between three positions. The hinged block 46 rests upon a metal support 48 fastened to the carriage frame 38. The hand cords (not shown) are adjustably locked between cam lock rollers 56 and pass under two sets of rope brackets 58 to secure the cords.

A separate perspective view of the carriage frame 38 is shown in Figure 5. An end view of the frame 38 with the end pieces of the channels are removed for purposes of illustrating the shape of the channels as shown in Figure 6. Frame 38 is formed from sheet metal which is cut and folded to form a ladder shaped carriage frame structure with a pair of spaced parallel U shaped box side channels 50. The frame 38 is preferably made of steel sheet metal. The side channels 50 are closed at the ends. A piece of sheet metal is bent down and welded to close off the ends of the channels 50. The carriage frame 38 structure has a cushion pad 40 support portion with a series of alternating transverse ribs 52 and platform portions 53, 54 and 55 spacing the channels 50 apart. After the single piece of sheet metal is cut, it is folded to form the alternating transverse ribs 52. The folded ribs 52 are welded or otherwise secured to the side channels 50. Alternatively, laser cutouts of excess material of the steel frame 38 can be removed to reduce the weight of the carriage 20. The side channels 50 receive and support one of the roller wheels 22 at each end thereof as shown in Fig. 3. The side channels 50 extend beyond the cushion pad support portion 40 to support and cover the roller wheels 22. Therefore, the roller wheels 22 are in front of or behind where the cushion pad 40 rests.

The guide wheels **23** are located beneath the platform portions **53** and **55** adjacent the roller wheels **22**. One roller wheel **22** and one guide wheel **23** are shown mounted to the carriage frame **38** in Fig. 5. The roller wheel **22** is shown in Fig. 5 with dashed lines representing the carriage frame **38** having closed ends covering the roller wheels **22**. The ribs **52** provide support for the carriage pad **40** and space the side channels **50** apart. One of the ribs **52** guides the springs **24** via apertures **66** through the ribs **52** toward the foot end **16** of the carriage **20**. Another rib **52** has slots **37** to feed the end of the spring **24** through. The springs are held in place by a rod **71** that spans behind it. In Fig. 3, the rod **71** is shown in dashed lines representing it is behind the rib **52**. At the head end of the carriage frame **38**, the platform portion **53** supports the headrest **44** and shoulder stops **42** as further described below. In an alternative embodiment, the cushion pad **40** covers the entire carriage frame **38** along with the roller wheels **22** and guide wheels **23**.

Referring specifically to Fig. 3 and 5, the underside of the carriage frame **38** has transverse ribs **52** formed from the sheet metal. The springs **24** are fastened to a rod **71** located directly behind one of the ribs **52**. The springs **24** pass through the slots **37** in one of the ribs **52**. The springs **24** also pass through apertures or holes **66** in another rib **52**. The other end of each of the springs **24** has a hook or eye **59** that may be selectively fastened to a post **60** projecting from the vertical side of a spring support cross member plate **62**, as shown in Fig. 1. The spring support plate **62** is attached at the foot ends of the track assemblies **18**. The location of the posts **60** on the spring support plate **62** provides an anchor for the springs **24** when the carriage **20** is fully retracted toward the foot end **16**. In an alternative embodiment, the spring support plate **62** may be replaced by a rod fastened to the foot end **16** (not shown).

The top of the head end platform portion **53** of the carriage frame **38** supports the headrest **44**. As shown in Fig. 1, a metal support **48** is welded, fastened by screws, or otherwise secured to the head end platform portion **53**.

A trapezoidal shaped hinged block 46 rests on the metal support 48 and preferably, may be moved between three positions, depending on the user's preferred head level. The padded headrest 44 is bolted, or otherwise fastened to the hinged block 46. One end of the padded headrest 44 has a hinge (not shown) which is fastened to the carriage frame 38 to prevent the headrest from sliding. Preferably, the headrest 44 is fastened to the vertical portion of one of the ribs 52, as shown in Fig. 1.

Also, fastened to the upper side of the carriage frame 38 are two shoulder stops 42. Shoulder brackets 94 are fastened to the vertical portion of one of the ribs 52 of the carriage frame 38. Alternatively, the shoulder brackets 94 are L-shaped (not shown) and are bolted, fastened by screws, or otherwise fastened to the top of the head end platform 53 and fastened to the vertical portion of one of the ribs 52. The shoulder plates 96 having horizontal rods 98 slide and lock into the shoulder brackets 94. A shoulder cushion pad 100 is fastened to the top shoulder plate 96. For storage, the shoulder plates 96 can be pulled upward and laid flat on the carriage 20 while remaining secure in the shoulder brackets 94, as shown in Fig. 7. More specifically, the horizontal rods 98 are removed from the shoulder plates 96 with an upward motion. The bottom shoulder plate 96 remains secure in the bottom shoulder bracket 94 while the plates 96 and the shoulder cushion pad 100 lay flat on the head end platform portion 53 of the carriage frame 38. The shoulder plates 96 are held down on the carriage 20 by elastic cord, Velcro, or an otherwise securing means (not shown).

Referring to Fig. 7, an additional plastic cover 102 is fastened by glue, snap, screws or otherwise fastened to the ends of the side channels 50 of the carriage frame 38. The cover 102 is preferably an inverted U shaped piece of injected plastic. At the ends of the plastic covers 102 and the ends of the channels 50, are rubber stops 104, also shown in Figs. 4 and 7. There are preferably four plastic covers 102 placed over each of the roller wheels 22 on the carriage frame 38. The rubber stops 104 allow quiet operation when the

carriage hits either the foot platform **28** at the foot end or the head end cross member **32**. The end of the channels **50**, the plastic covers **102** and the rubber stops **104** prevent the carriage from moving too close to the foot platform **28** and the head end cross member **32**.

5 The cam lock rollers **56** and one pair of the rope brackets **58** are fastened to the top of the plastic covers **102** at the head end of the carriage frame **38**. Another pair of rope brackets **58** are fastened by screws or otherwise fastened to the top of the carriage frame **38** next to the cam lock rollers **56**, as shown in Figs. **1** and **7**.

10 Referring to Fig. **7**, the foot end **16** is preferably a folded platform **28** of sheet material such as steel, aluminum or aluminum alloy which is generally rectangular and has a C shaped cross section. Side **72**, facing the carriage **20**, includes a cutout **70** to permit the user to access, i.e., reach beneath and position springs **24** on the posts **60** on the spring support cross member plate **62** as can be envisioned with reference to Fig. **1**. The outer ends of side **72** and the ends of the spring support plate **62** are fastened to the top of the rail member assemblies **18** by threaded fastens, adhesive bonding, welding or other suitable means. A separate piece of sheet metal, the jump board support **29**, is attached to the bottom of the rail member assemblies **18**, as shown in Fig. **2**. The jump board support **29** is folded to provide a channel in which the jump board **78** can be placed securely. The jump board support **29** supports a bottom edge of a removable jump board **78** as shown in Fig. **7**.

 The foot end platform **28** further acts as a horizontal foot support. Adjacent each end of the top of the platform **28**, are apertures **80** through which the legs of the removable foot bar **26** are placed. The foot bar **28** can be placed in one of the two sets of apertures **80** in the foot end platform **28**, as shown in Figs. **1** and **7**. The foot bar **26** is then fastened to the rail assemblies **18**. The legs of the foot bar assembly **26** may be inserted through apertures **80** in the rail member assemblies **18**, which in turn are inserted into apertures in a spud (not shown). The spud (not shown) is placed inside the foot end of

the rail members **18**. The foot bar **26** is held in place by the spud and fastened by foot bar pins which are inserted through the rail assemblies **18** and into the spud (not shown).

As shown in Figs. **1** and **7**, a pair of wheel assemblies **74** are fastened to the rail assemblies **18**. The wheel assemblies **74** include a wheel assembly sheet metal support bracket **75** which is fastened to the rail member assemblies **18** and the spud (not shown) preferably by screws or otherwise fastened. The wheel assembly support bracket **75** secures a wheel **77**. These wheel assemblies **74** permit the apparatus **10** to be easily transported by simply lifting the head end **14** until the wheels **77** engage the ground and then rolling the apparatus **10** as one would roll a wheelbarrow.

The removable foot bar assembly **26** comprises a general U shaped foot bar, preferably made of steel sheet metal, having a pair of spaced bent leg portions **106** and a foot bar portion **108** therebetween as shown in Fig. **7**. The bend in the parallel leg portions **106** allows the user to place the foot bar assembly with the bend toward the carriage **20** or alternatively, away from the carriage **20**. A padded sleeve **110** over the foot bar portion **108** provides a cushion support for a user's foot. The foot bar assembly **26** is shown in Figs. **1**, **2** and **7** assembled through the apertures **80** in the foot platform **28** and onto the rail member assemblies **18** at the foot end **16** of the frame **12**.

The rail member assemblies **18**, preferably made of aluminum, steel or an aluminum alloy, are composed of a foot end rail member **84** and a head end rail member **82** as shown in Figure **8**. The head end rail members **82** telescopically retract into foot end rail members **84**. The foot end rail member **84** is a tubular box extrusion with open ends. Preferably, spuds are used to screw in one end of the foot end rail member **84** to the foot platform **28**. The bottom of side **72** of the foot end platform **28** facing the carriage and the spring support plate **62** are fastened to the top of the foot end rail member **84** by threaded fastens, adhesive bonding, welding or other suitable means.

The spuds also fasten the foot end rail member **84** to the jump board support **29** (not shown).

To the other end of the foot end rail member **84** is an external guide bushing **88**. This is shown in Fig. 8. Part of the external guide **88** fits into the end of the foot end rail member **84** and the external guide **88** has a lip portion that fits around the outside edges of the foot end rail member **84**. The external guide bushing **88** has a top wall, two vertical walls and a bottom wall. The bottom wall of the external guide **88** has two grooves which provide guides for the head end rail member **82**.

The head end rail member **82** is an inverted U channel extrusion consisting of two side walls, a top wall and an open bottom. The ends of the side walls are curved to form a foot that fits into the grooves of the external guide **88**. The head end rail member **82** slides comfortably through the external guide bushing **88** and into the foot end rail member **84** due to the foot and groove alignment providing quiet, smooth movement.

One end of the head end rail member **82** is bonded, welded or otherwise fastened to the head end tubular box cross member **32**. Preferably, the end of the head end rail member **82** has a spud insert (not shown) which allows the cross member **32** to be screwed into and securely fastened to the rail member. At the opposite end of the head end rail member **82** are two internal guide bushings **86**, as shown in Fig. 8. The internal guides **86** are C shaped and clip onto the outside of head end rail member **82** and can be fastened by a screw and T-nut. The internal guides **86** fit along the inside of the foot end rail member **84** which allows the head end rail member **82** to move smoothly along the inside of the foot end rail member **84**. In an alternative embodiment, the head end rail member is a tubular box extrusion with open ends (not shown).

The internal **86** and external guides **88** are preferably made of injected molded or other substantially rigid, tough material. The guides **86** and **88** can

be fastened by screws and a T-nut or otherwise fastened to the rail member assemblies 18. When the head end rail member 82 and the foot end rail member 84 are joined, the external guide 88 may be hand tightened by the foot end rail member pin 90 which pushes the guide against the head end rail member 84 and eliminates play in the rails. The pin 90 is located on the outside of the foot end rail member 84 also shown in Fig. 8.

A carriage stop cross member 91 is fastened by screws, bolted or otherwise fastened to the bottom of the foot end rail members 84 as shown in Fig. 2. This cross member 91 is located at the head end of the foot end rail members 84. Also, as shown in Fig. 7 and discussed above, fastened to the ends of the foot end rail members 84 are wheel assemblies 74 comprised of a sheet metal support bracket 75 and a wheel 77. The support bracket 75 is bolted or otherwise fastened to the foot end rail member 84 and the wheels 77 are fastened to the support bracket 75 on a horizontal axis. The wheel assemblies 74 provide easy transportation of the exercise apparatus 10 to a storage location.

Referring now to Figs. 2 and 4, construction of the carriage 20, roller wheels 22 and guide wheels 23 will be described. The roller wheels 22 are fastened to the underside of the side channels 50 of the carriage frame 38 via screws, a pin, or otherwise fastened. When set in motion the head end roller wheels 22 move along the top of the head end rail member 82 and the foot end roller wheels 22 move along the top of the foot end rail member 84. Due to the extra height of the foot end rail member 84, the head end roller wheels 22 are mounted lower than the foot end roller wheels 22 so that the carriage lays evenly parallel with the ground. In other words, if the carriage 20 and roller wheels 22 were set on a flat surface, the head end of the carriage 20 would be higher than the foot end. In an alternative embodiment, the roller wheels could be made bigger to adjust for the different rail member heights.

The roller wheels 22 are elongated cylindrical wheels mounted on a horizontal axis. The guide wheels 23 are round wheels mounted on a vertical

axis. The guide wheels **23** are fastened to the underside of the carriage platform portions **53** and **55**, as shown in Figs. **3** and **5**, at a vertical axis, and the guide wheels **23** move along the inside rail members **18**. The head end guide wheels **23** are mounted at the underside of the carriage frame and roll along the inside of the head end rail member **82**. Since the head end rail member **82** is smaller in size than the foot end rail member **84**, the head end guide wheels **23** will be mounted at a different location than the foot end guide wheels **23** on the carriage frame. The head end guide wheels **23** move along the inside of the head end rail members **82** and the foot end guide wheels **23** move along the inside of the foot end rail members **84**. The guide wheels **23** ensure that minimal friction is exerted between the carriage **20** and the rail members **18** for an exceptionally smooth back and forth movement of the carriage **20** on the rail members **16** of the apparatus **10** during use.

For transport, one telescopically compacts the head end rail member **82** into the foot end rail member **84** at a locked position, removes the foot bar assembly **26** from the foot platform **28**, retracts the shoulder stops **42** to a flat position, and places the compacted apparatus in one's vehicle, closet or under a piece of furniture. More specifically, the exercise apparatus **10** is less than 60 inches long in its collapsed state so that it will fit under a bed while allowing the carriage **20** to travel approximately 40 inches when the frame is in its extended state. Each of the guide wheels **23** and roller wheels **22** rest upon either the head end rail members **82** or the foot end rail member **84** when the apparatus is fully retracted for storage. The spring support cross member **62** has tabs (not shown) that lock over the carriage frame **38** preventing the carriage from coming off of the rail assembly **18**.

In an alternative embodiment, as shown in Fig. **9**, legs **36** are attached to the frame **12**. Up to six legs **36** are fastened to the underside of the frame **12** which raises the frame **12** and the exercise apparatus **10** off of the ground. This provides easier use for an assistant, such as a personal trainer or physical therapist, to assist the user on the exercise apparatus **10**. The legs **36** are

retractable and are snapped, bolted, or otherwise fastened to the frame **12**. Legs **36** are fastened to each corner of the frame **12**, more specifically, two legs **36** are fastened to the underside of each of the head end rail members **82** and two legs **36** are fastened to the underside of each of the foot end rail members **84**. Up to two legs **36** can be fastened to the underside of the carriage stop cross member **91** which is fastened to the head end of the foot end rail members **84**. Thus, the legs **36** fastened to the carriage stop cross member **91** are located in the middle of the frame **12** and provide support for the center of the exercise apparatus **10** as shown in Fig. **9**. Alternatively, the legs **36** can be removable from the frame **12**.

Accordingly, the invention may be practiced other than as specifically described and shown herein with reference to the illustrated embodiments. The present invention is not intended to be limited to the particular embodiments illustrated but is intended to cover all such alternatives, modifications, and equivalents as may be included by the following claims. All patents, patent applications, and printed publications referred to herein are hereby incorporated by reference in their entirety.